CEDEFOP
European Centre for the Development of Vocational Training

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DIGITAL, GREENER AND MORE RESILIENT

Insights from Cedefop's European skills forecast

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The **European Centre for the Development of Vocational Training** (Cedefop) is the European Union's reference centre for vocational education and training, skills and qualifications. We provide information, research, analyses and evidence on vocational education and training, skills and qualifications for policy-making in the EU Member States.

Cedefop was originally established in 1975 by Council Regulation (EEC) No 337/75. This decision was repealed in 2019 by Regulation (EU) 2019/128 establishing Cedefop as a Union Agency with a renewed mandate.

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Foreword

Reliable and trusted information on labour market and skills trends is a driver of success in skills formation systems. This is even more important in times of rapid change and transition. Although the digital and green transitions towards more sustainable economies and societies are not new phenomena, they are picking up speed and have become central priorities in EU policy. The effects of the Covid-19 pandemic go far beyond the disruption caused by attempts to limit its spread.

It is obvious that these megatrends are transforming the worlds of work and education and giving rise to new jobs and skill needs. But which skills, and for which jobs? If education in general, and VET and lifelong learning in particular, is to be a smart choice for people, it also needs to be relevant, not only in the short term but also from a longer-term perspective. It therefore needs to adjust to and anticipate structural changes that affect economies and the labour market. Information on skills and qualification needs and job prospects can also help guide people's education choices, encourage further learning and provide insights into the career opportunities that make the most of their skills.

The Cedefop skills forecast is the only comparable outlook on future labour market trends across countries, sectors and occupations in the European Union. It is well-known and widely used. The forecast has also inspired several countries to set up or improve their own skills anticipation systems. The purpose goes beyond producing a database of employment trends in countries, sectors or occupations: Cedefop systematically looks into what drives and lies beneath the trends and provides expert insights into what these mean for policy and practice.

The results and returns on education and training investments take years to materialise. The forecast acts as an early warning system which allows policy-makers to be proactive; this function remains relevant in dynamic and disruptive times. The fact that the forecasts offer long-term insights without being overly focused on the here and now is a key strength, helping envision the future and offering important clues on how to shape it.

This short publication reports on highlights emerging from several skills forecast scenarios. We hope the findings on the impact of continuing digitalisation, on implementing the European green deal, and on the coronavirus pandemic will inspire creative and holistic thinking about how headline VET and skills policy priorities are best implemented in the years ahead.

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CHAPTER 1.

Introduction

Cedefop has produced skills demand and supply forecasts for the European Union for over a decade, providing policy-relevant insights into where the labour market is headed. Typically incorporating data and assumptions spanning several decades, skills forecasts capture the long-term and stable structural megatrends that continuously shape and reshape the labour market. These include technological change, globalisation, the shift towards more service-based economies, demographic shifts such as population ageing, and the increasing education level of the population. Offering insights into trends towards a more distant future is the skills forecasts' key added value. While their speed may change, the overall patterns and directions of the megatrends that skills forecasts help uncover remain relatively stable.

Signalling labour market imbalances from a long-term perspective, skills forecasts act as an early warning mechanism. This supports policy-makers in education, employment, skills, training and – particularly in countries with more advanced approaches – adjacent policy areas such as migration, innovation, and digitalisation. Provided skills anticipation systems efficiently and effectively communicate the skills intelligence they produce, labour market forecasts support employers in shaping strategic HR policies; they also help citizens make more informed education, training and career choices. In almost all EU Member States, skills forecasts are a backbone of the national skills anticipation system ([1]).

Cedefop's European skills forecasts (Box 1) have helped strengthen the evidence base underlying European skills and VET policies and ease their implementation. Released every two years since 2010, they provide the best possible estimate of labour market trends for all EU Member States in a comparable manner. Cedefop's skills forecasts are based on the most recent data available and incorporate analysis of the behaviour of labour market actors observed in the past. Use of common methodology and harmonised

([1]) See the skills anticipation in Member States (2017 data) in the Cedefop Skills Panorama database.

information makes it possible to assess and compare employment trends in sectors, occupations and qualification levels in Member States and the Union as a whole. A network of national experts contributes essential knowledge and insights into how the future may evolve.

CHAPTER 2.

The value of skills forecasts in dynamic and uncertain times

Unexpected shocks, such as the 2008 global financial crisis and the Covid-19 pandemic seriously disrupt the labour market in the short-to medium term. In times of rapid change, they are valuable policy-making tools. The window to the future they provide is an anchor for policy-makers tasked with long-term strategic decision-making. Taking a long-term and 'big picture' perspective is particularly beneficial for skills formation policies. A future-oriented outlook stimulates visionary, broader and more holistic thinking about investing in education, skills and employability.

Skills forecasts must not be used as a crystal ball: dynamics not captured by data feeding the forecast, unexpected developments and changing preferences and policy priorities, plus a range of other factors, make it likely the future will unfold in ways different from what the forecasts show. In turbulent and disruptive times, short-term deviations from long-term trends are likely to be pronounced. At the same time, reliable skills intelligence about future labour market and skills trends probably has even more value in times of transition and transformation.

Although the digital and green transitions are part of long-term transformative trends that Cedefop's skills forecasts identified much earlier, these 'twin' transitions are picking up speed, aided recently by growing policy emphasis. This is taking place in parallel with unprecedented economic downturn and great uncertainty because of the Covid-19 pandemic. In such a context, using skills forecasts to understand labour market trends is far from straightforward. While sketching out a long-term perspective remains a valid and policy-relevant approach, predicting what is likely to happen in the more immediate future is challenging.

Box 1. **Cedefop skills forecast: in brief**

- The Cedefop skills forecast offers projections of future employment trends in sectors and occupations in all EU Member states plus Iceland, North Macedonia, Norway, Switzerland, Turkey and the United Kingdom.
- It also provides insights into future trends in the education level of the population and the labour force.
- Skills are proxied by the occupation somebody is in and the level of education someone holds. These typically capture the skill/competence level needed to perform a job.
- Job openings measure future demand in sectors and occupations. They include expansion demand (employment increases or falls) and replacement demand (demand arising from people leaving the labour market and from job-to-job mobility).
- Cedefop forecasts are updated every two years and the forecast horizon is typically a decade.
- The forecast builds on the official views of the European Commission by incorporating the latest (at the time of producing it) economic and population projections.
- The latest Cedefop skills forecast was completed before the Covid-19 pandemic. As a result, while the long-term trends it signals largely remain valid, the short and medium-term insights it offers are somehow optimistic.
- Harmonised international data, use of international classifications (NACE for sectors, ISCO for occupations and ISCED for qualification levels) and a common methodological approach make it possible to compare trends across countries.
- To ensure reliable and high-quality information, national experts validate the trends and the forecast methodology. Since the first European skills forecast was released in 2010, the methodology has continuously been refined and fine-tuned.
- Cedefop skills forecasts do not replace national forecasts. National forecasts typically provide more insights as they make use of more detailed data and advanced methodologies and incorporate in-depth knowledge about the labour market and the national context.

Source: Cedefop. See more on the Skills forecast project page.

To stimulate reflection on long-term trends and their likely effects, Cedefop has used its skills forecast framework for scenario analysis. The digital and green transitions reshaping European economies and labour markets, and the transformative and uncertain impact of the Covid-19 pandemic, were starting points in constructing the scenarios. Presenting the outcomes of the scenarios, this publication provides insights into how megatrends are likely to transform the EU labour market in the long-term. While findings

based on scenario analysis are not to be used as definite answers, they can provide the background and context needed to shape future-oriented skills policies. The scenarios use Cedefop's 2020 forecast, which was completed before the pandemic hit, the green deal was agreed and the 2020 Skills agenda was released, as a baseline. Following an overview of key highlights emerging from the scenario analysis, the concluding section reflects on main policy implications ([2]).

([2]) Cedefop will release its full skills forecast scenario findings later in 2021.

CHAPTER 3.

Mega-trends shaping labour market developments: the pre-pandemic scenario

Until the Covid-19 pandemic hit, the megatrends impacting the EU labour market were expected to result in relatively moderate employment growth, continuing growth of employment in service sectors (largely driven by 'greening' and automation) and job polarisation in terms of skill levels. This combines with supply-side trends, notably population ageing, a thinning of the middle of the age distribution of the workforce, and increasing education attainment over time. With employment growth slightly outpacing labour force growth, in this 'pre-pandemic' scenario the expectation was that increasing labour market tightness would make meeting demand for workers in the current decade more challenging than in the previous one.

Future employment growth was expected to be mainly driven by public services (health and social work, education), business services, transport and communication and distribution and retail, and an overall increase in technology and R&D intensive activities. The increase in service-sector employment was foreseen to be strongest in newer Member States. Employment in extraction industries, basic manufacturing and – in particular – agriculture was set to decline, reflecting a shift from polluting to cleaner sectors and increasing automation. These sectoral trends translate into many expected job openings for professionals, technicians and associate professionals and service workers.

Before the pandemic, Cedefop's skills forecast showed most job openings up to 2030 would require high-level qualifications such as business and administration professionals, legal social and cultural professionals and science and engineering professionals. Apart from increased employment in areas relying on their services, such occupations also benefit from increasing demand for the skills they embody overall, increased specialisation, skills upgrading and more demanding work environments. Occupations requiring medium-level skills were expected to decline: this includes skilled manual

occupations in manufacturing such as metal, machinery and related trades workers, and skilled non-manual occupations such as numerical and material recording clerks. Some employment growth up to 2030 was also forecast for occupations requiring low skills, contributing to continued, though moderated, job polarisation.

As young labour markets entrants tend to be higher educated than older cohorts leaving the labour market (many of which have the skills required but not the corresponding formal qualification), the share of higher-qualified workers was set to increase over time. With demand expected not to keep pace fully with skills upgrading on the supply side, some high-qualified workers would likely end up in positions typically requiring a lower qualification. At the same time, there was the expectation that occupations requiring high-level skills will be the ones with the most hiring difficulties in 2030, because automation contributes to making the skills of current highly qualified workers obsolete. This trend towards a workforce which is overqualified but underskilled is a key policy challenge. With demand for staff in occupations requiring low- or medium-level skills (such as elementary occupations, craft and related trades workers) decreasing, along with supply of people with suitable profiles to be employed in such jobs, similar recruitment difficulties at the lower end of the labour market were not foreseen.

CHAPTER 4.

The pandemic and the labour market: learning from Cedefop's Covid-19 scenario

While the pandemic directly influences labour supply and demand for goods and services (e.g. through infections and hospitalisations), its effects on employment are predominantly indirect. Government measures to curb the spread of the virus, such as lockdowns, quarantines and other restrictions on movement of workers and consumers, have a far greater impact. Economic support measures (including furlough schemes for workers and rescue packages for businesses) can only partly counter the negative effects of restrictions on movement. Uncertainty about future economic prospects is likely to have a negative impact on investment, at least in the short term.

A scenario incorporating assumptions about the likely effects of Covid-19 was developed to capture the pandemic's potential impact on employment. Comparing the baseline 2020 skills forecast results with those obtained in the Covid-19 scenario makes it possible to identify occupations and sectors that are vulnerable or resilient against the initial impact of Covid-19. With the pandemic expected to fade gradually, such comparisons can also shed light on the speed of recovery in labour market segments in the medium and longer term. To understand the multifaceted effects of the pandemic, multiple sources were consulted to develop the Covid-19 scenario assumptions (Box 2).

Box 2. **Cedefop skills forecast Covid-19 scenario and its assumptions**

- The scenario considers the impact of Covid-19 on labour supply, consumption, investment and trade.
- Scenario assumptions were made at Member State level.
- The most recent statistical data (available at the time the forecast was developed) were used.

- Assumptions reflect lockdowns (including the nature of the lockdown restrictions, duration and travel restrictions), labour market participation, as well as government support measures (including working arrangements, fiscal support measures and any additional final expenditure measures announced).
- The scenario incorporates two lockdown waves and assumes vaccines to the general population to be available by mid-2021.
- For 2021, it was assumed that changes in demand (i.e. consumer expenditure, trade and investment) would be roughly half of those in 2020, with some of the government support measures still in place.
- The assumption is that by the end of 2021, most short-term effects of Covid-19 will fade.
- No changes were made to the baseline population projections, as the impact was considered too small
- The national experts consulted in setting the assumptions helped refine them.

Source: Cedefop.

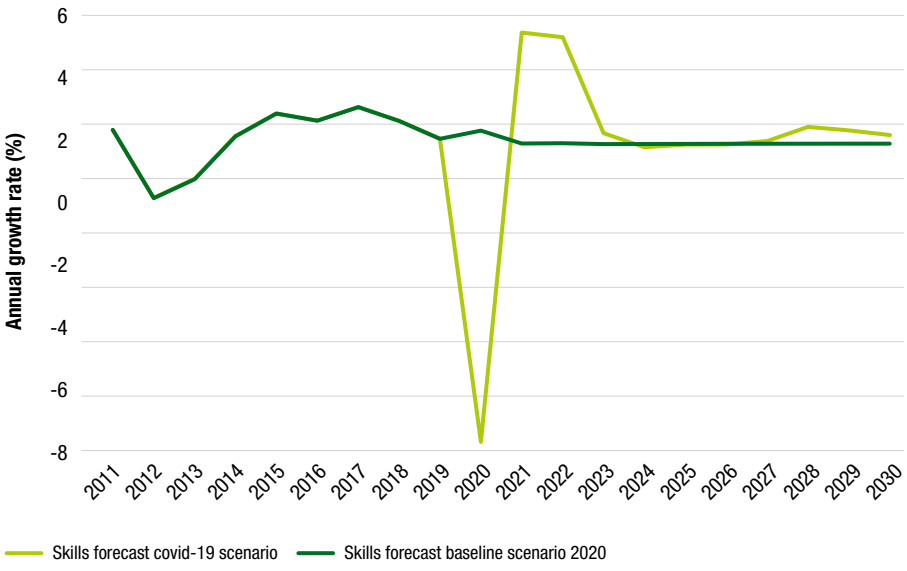
In the scenario, EU-27 annual GDP growth for 2020 is estimated to be -9.7% (Figure 1), which means GDP is 11% lower in real terms compared to the 2020 skills forecast baseline ([3]). Provided the scenario assumptions hold, annual GDP growth is expected to return to baseline level by 2023. Despite the policy measures implemented to protect jobs, in the scenario EU employment in 2020 is 6.6% lower than in the baseline ([4]). With employment still around 2% below baseline in 2030, a significant part of the employment loss appears to be structural.

The combination of context and policy responsiveness drives employment impact. The nature of Covid-19 measures, the sectoral structure of the economy and its dependence on investment, consumption and trade are important factors. As can be expected, countries with extensive furlough and temporary leave schemes, such as Germany, Finland and Sweden, appear to be most resilient. In comparison with the baseline forecast, Croatia, Portugal and Romania show the highest short-term decline in employment in the scenario.

([3]) The winter 2021 economic forecast from Eurostat, which was the latest available at time of writing, showed a more moderate GDP drop of -6.3%.

([4]) At time of writing, Eurostat estimates show a -2.7% decline in employment between 2019 and 2020.

Figure 1. **EU-27 GDP annual growth rates: skills forecast baseline vs Covid-19 scenario**



Source: Cedefop.

Some Member States (including Czechia, Denmark and the Netherlands) return close to (i.e. less than 1% below) baseline employment forecast levels by 2030. In Ireland, France and Cyprus, forecast employment remains around 3% below baseline in 2030. In Spain, a country heavily impacted due to its large tourism sector, the employment decline is most pronounced and persistent.

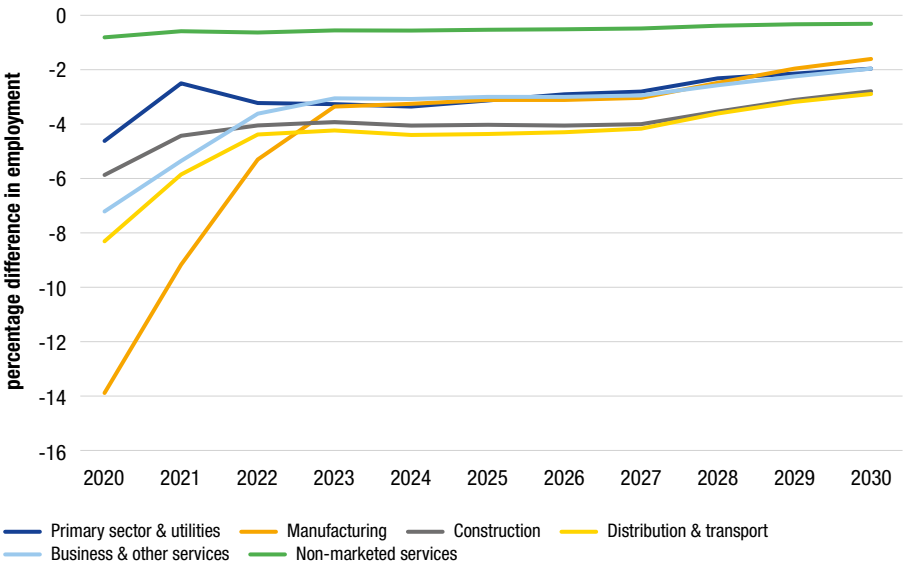
Sectoral initial employment shocks and subsequent rebound patterns are strongly linked to the nature of economic activities and jobs. The heavily affected manufacturing sector, which comprises many 'non-essential' businesses where shifting to remote work could not be quickly implemented, is also the sector which is expected to recover quickest (Figure 2). In sectors where employment in the delivery of goods and services is heavily impacted by lockdowns and restrictions of movement measures - such as travel, hospitality, parts of retailing and events, and arts and entertainment – economic and employment recovery is markedly slower. Changing consumer behaviour after the pandemic is a major driver of employment dynamics in heavily impacted sectors. This includes the effects of social

distancing becoming the 'new normal' and declining consumer spending, which in many countries is linked to uncertainty and higher levels of debt accumulated during the pandemic.

Despite the steep recovery, employment decline in manufacturing is expected to accelerate. The same holds for agriculture, forestry and fishing. Less job creation in wholesale and retail, and transport and storage drives the employment decline forecast for distribution and transport, which also reflects the effect the pandemic has on accelerating the automation of work (as with online retail).

Non-marketed services are the least impacted in the short and the long term. Apart from employment in essential services (e.g. healthcare, public administration) such services also include many jobs in sectors where work can easily be carried out remotely. Healthcare, production of pharmaceuticals and personal protective equipment and related hardware are expected to see expanding employment, mostly as a result of public policies aimed increasing resilience in the future.

Figure 2. **EU-27 employment in broad sectors: skills forecast baseline vs Covid-19 scenario**



NB: Presented as % difference from the baseline.
Source: Cedefop.

Forecast employment trends for occupations follow sectoral developments. Although the scenario points to significant job losses in all major occupational groups, for those in the manufacturing, transport, accommodation and (traditional) retail sectors, the projected employment losses relative to the baseline are most pronounced. The impact of the pandemic on employment in occupations also reflects how easily work tasks that are part of them can be carried out remotely or in settings respecting social distancing, and their essential role in battling the pandemic. Employment in essential occupations (health and associated professionals, cleaners and helpers) remains stable in the short term and is expected to increase by 2030.

Employment in low-skilled occupations is projected to decline most, showing that the pandemic is likely to impact disproportionally the least well-qualified and most disadvantaged parts of the workforce. Employment for those with low level qualifications in many occupations is projected to remain 3-4% below baseline levels in 2030. Better-qualified workers will have far better employment prospects. Even total job openings, including new jobs created plus replacement needs, collapsed towards zero when the pandemic hit. With the impact of the health crisis likely to subside from 2021 onwards, employment is set to recover to some extent, but job opportunities are expected to remain below the baseline forecast level. This negative effect is stronger for medium- and lower-level occupations and is even more pronounced for the intermediate- and lower-qualified. High-skilled jobs, which are more easily adaptable to remote work and social distancing, and often play a role in battling the pandemic or easing its effects, are much less affected.

The Covid-19 scenario shows the pandemic may accelerate megatrends. This includes the structural shift to the service sector, automation/digitisation and labour market polarisation towards high-skilled jobs. The share of high-skilled employment is growing, not only because of a growing proportion of high-skilled occupations in employment, but also because qualification requirements within occupations are rising due to increased job complexity. On the other side of the spectrum, jobs that require physical proximity to others (colleagues, clients or customers or the general public) are most at risk.

As other studies on the impact of the pandemic in developed (EU countries, US) and developing countries show (del Rio-Chanona et al., 2020; Carvalho et al., 2020), the shift to working and buying goods and services

online can have important second-round effects: they reduce the need for physical spaces and transport. Decisions to introduce artificial intelligence (AI) or automation faster than originally foreseen possibly speeds up to the shift towards high-skilled work, particularly in manufacturing and logistics. These studies show the pandemic and responses to tackle it exacerbate existing labour market inequalities. Vulnerable groups (younger workers, immigrants, many self-employed and less-educated workers) are more likely to be negatively affected by Covid-19 in the short term, but also from a more longer-term perspective. How grave the effects of the pandemic on such groups will ultimately turn out to be, is currently hard to predict. With mass vaccinations under way, the outlook has improved, but it remains to be seen when sectors strongly affected by the pandemic can return to normalcy, and how many businesses will manage to overcome the unprecedented challenges they are still facing.

CHAPTER 5.

Future job openings most likely to be impacted by automation

Previous waves of technological development have led to disruption, reshaping the labour market by making job positions or whole occupations obsolete, and, in turn, creating new ones. Rapidly evolving technology, such as AI and machine learning, which could potentially be applied to a wide range of tasks currently undertaken by humans in many different occupations, can have wide-ranging consequences. As automation is both a job creator and destroyer at the same time, higher economic growth and labour productivity increases can be accompanied by lower employment, when job losses in some sectors or occupations total more than the jobs created in others.

The pace of technology adoption is uncertain as it depends on a wide range of factors. Among them are the willingness to invest in research and development, the relative price of technology versus labour costs, the digital and other skills available in the workforce, social partner engagement in promoting upskilling, and legislation. Therefore, it is difficult to gain insights into how many jobs technology adoption will destroy, how many new jobs will emerge as a result of it, and when this will happen. With the job creation component even more difficult to estimate than job destruction, most empirical studies focus on the latter.

Cedefop's skills forecast framework was used to identify and explore the potential effects of automation. By classifying occupations by their automation risk (Box 3), it is possible to understand the potential automatability of future job openings. It is important to recognise that such an exercise provides broad-brush insights and patterns, and that overall trends and comparative information – not exact numbers – are most insightful from a policy perspective.

Box 3. **Classifying occupations as potentially automatable or non-automatable**

The risk of automation is modelled by classifying each two-digit ISCO occupation as either automatable or non-automatable. An occupation is considered automatable if more that 50% of the job positions in it are automatable. This is measured by considering underlying three-digit occupations which are considered automatable in the relevant literature because of past or current technological advancements.

Source: Cedefop.

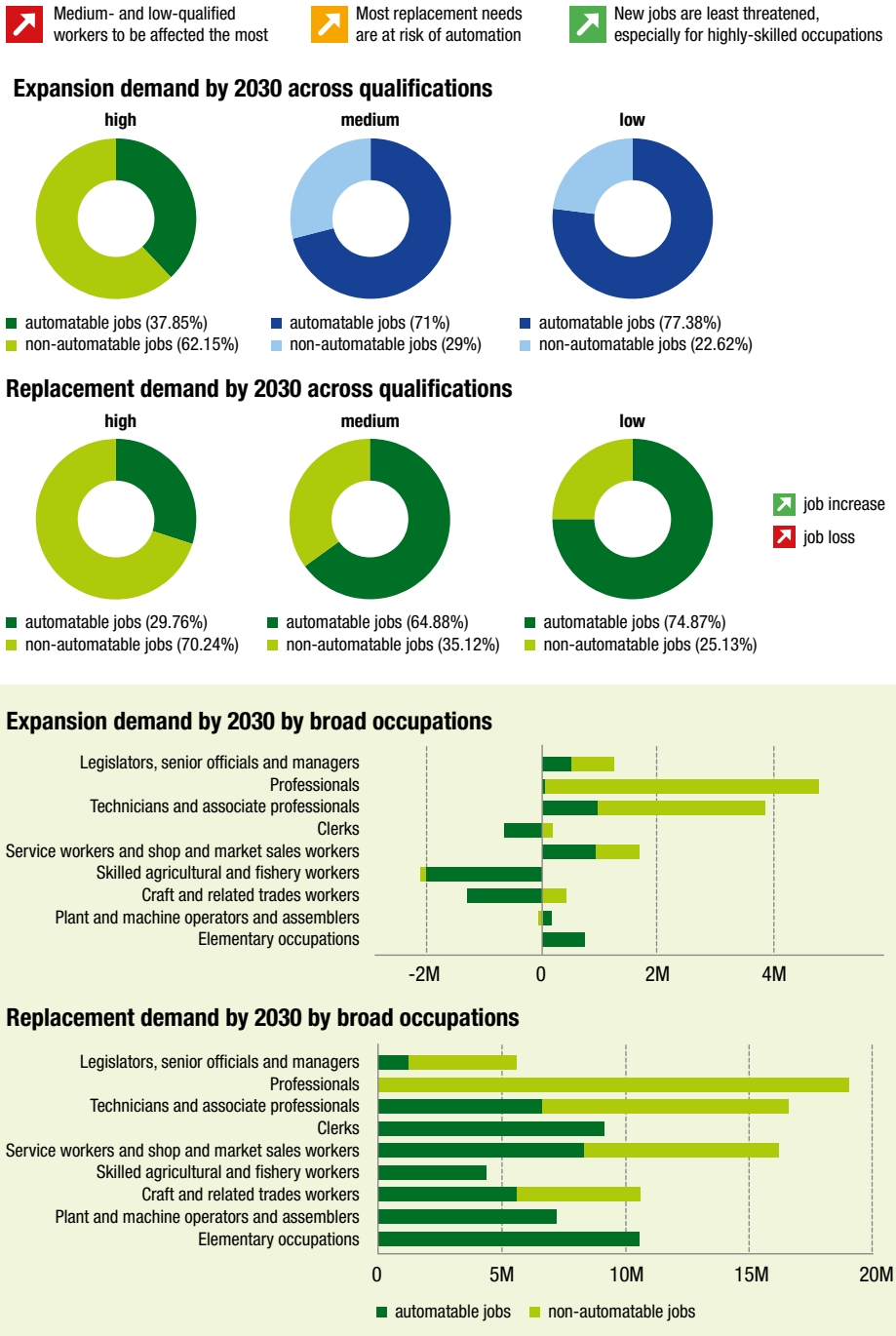
Most new jobs expected to be created in the EU-27 until 2030 (employment growth) are not considered to be at risk of automation (Figure 3). The opposite holds for the forecast job openings that represent replacement needs. This implies that a significant share of people leaving their jobs because of retirement or career mobility may actually not be replaced in the decade ahead.

Most job openings requiring people with low- or medium-level qualifications are expected to be at risk of automation. For job openings requiring a higher-level qualification, the reverse is true, with most expected to be in occupations that are not automatable. This reflects the skills needs linked to new technologies (workers needed to operate the new technologies will mostly be high-skilled), as well as the relative resilience of high-skilled job positions. Some high-skilled workers will always be needed to monitor and operate technology. This translates into occupation trends, with higher level jobs such as professionals, legislators, senior officials and managers and technicians and associate professionals estimated to be at the least risk of automation.

This does not mean that all higher-level jobs are shielded from automation. Within broad categories (for example, professionals, associate professionals and technicians) there are occupations at risk of automation, such as business and administration professionals. In contrast, for broad occupation categories such as clerks, skilled agricultural and fishery workers, plant and machine operators and assemblers and elementary occupations, all jobs to be created are expected to be at risk of being automated.

Growing sectors (in terms of future employment) with the lowest proportion of new jobs at risk of automation are public administration and defence, education, information and communication, and the electricity, gas and

Figure 3. **Jobs in Europe at risk of automation by 2030**



steam sector. Accommodation and food service activities and administrative and support service activities are the sectors with the highest proportion of job openings expected to be at risk of automation. In sectors where further employment decline is forecast (such as mining and quarrying, agriculture and manufacturing), most forecast job losses are linked to automation. Growing employment is expected in sectors where technological change leads to job creation (complementing non-manual labour). In sectors where implementing new technology leads to the same amount of output with less manual labour (such as agriculture), jobs are lost.

The results confirm that the risk of automation decreases with the level of skills required to perform a particular job. This contrasts with previous technological progress waves, where primarily middle-skilled jobs were replaced by technology but there was a moderate rise also in the employment share of low-skilled and high-skilled jobs. The new wave of technological progress spearheaded by AI is expected to affect disproportionally those in low-skill and low-wage occupations.

CHAPTER 6.

European green deal impact on selected sectors

The European green deal (EGD) is an essential component of the EU's new growth strategy. The communication announcing it details measures and objectives set to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy with zero net emissions of greenhouse gases by 2050. The green deal is an umbrella framework for a wide range of policies and targets covering several policy domains:

(a) the supply of clean, affordable and secure energy;
(b) the mobilisation of industry to achieve a clean and circular economy;
(c) constructing and renovating buildings in an energy- and resource-efficient way;
(d) accelerating the shift to sustainable and smart mobility;
(e) preserving and restoring ecosystems and biodiversity;
(f) achieving a zero-pollution ambition for a toxic-free environment.

The EGD initiatives are far-reaching because they touch upon every economic sector and have the potential to reshape significantly the European economy and labour market. Employment in polluting activities is expected to decrease, while employment in more environmentally friendly activities will likely increase. This will have implications for the demand for occupations and skills. Although society as a whole will benefit from the EGD, those currently employed in 'brown' activities might have to shift to green(er) occupations and/or sectors. Without up- or reskilling, they face the threat of unemployment.

While past trends towards a greener economy are considered in Cedefop's skills forecast framework, the potential impact of the ambitious policies to be implemented under the EGD on future employment prospects is not fully reflected. The scenario developed to explore the employment impact of the green deal focuses on the sectors most affected by it (Box 4). Using empirical insights already available, the scenario takes a systematic

approach to assessing the employment effects of 'green' policies for particular sectors. This makes it possible to identify sectors where employment will be systematically reduced, increased, or redirected within the sector if the EGD initiative is implemented.

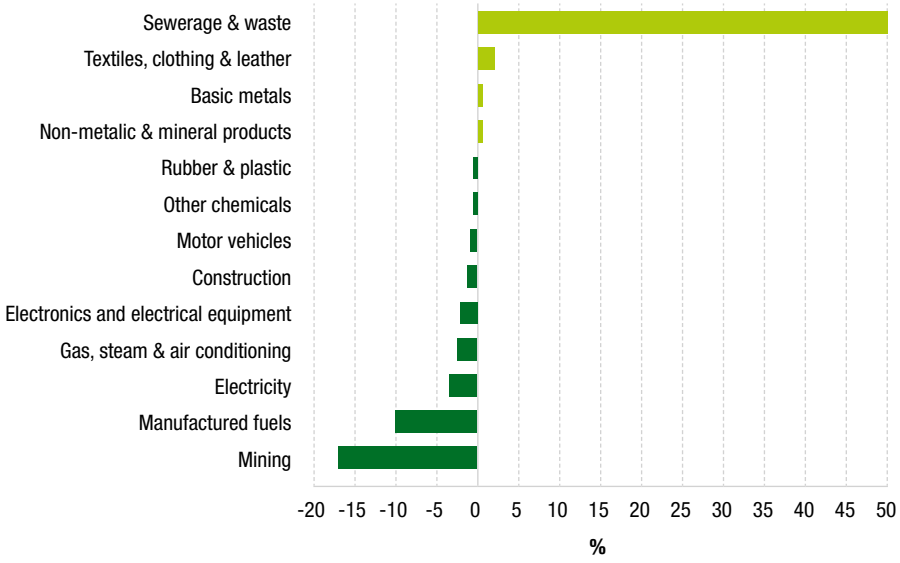
Box 4. **Skills forecast European green deal (EGD) scenario and its assumptions**

- The impact of the policies in the European green deal (EGD) on future sectoral employment is assessed by looking at possible employment effects of green policies similar to those of the EGD (e.g. Paris Agreement, energy efficiency of buildings, circular economy) estimated by previous studies.
- Although they have varying scope, assumptions, and aims, and are therefore potentially not entirely consistent with each other or with 2020 skills forecast assumptions, the studies used to build the scenario can be considered a suitable proxy for implementing key aspects of the green deal.
- Only selected sectors are included in the exercise: agriculture, mining, textile, coke and petroleum, chemicals, rubber and plastic, cement, steel, electronics, motor vehicles, electricity, gas and steam, waste, construction, freight rail transport and freight water transport.
- Cedefop's green deal scenario is a partial analysis. While key sectors targeted are included, not all its facets and consequences can be modelled. The wider economic impact driven by supply chain linkages, changes in consumption patterns and other factors has not been systematically considered.
- Despite these caveats, systematically considering the sectoral impact outlined in existing studies on top of the baseline skills forecast results provides policy-relevant insight.

The EGD is expected to exacerbate the ongoing decline in employment in the coal mining and manufactured fuels sectors (see Figure 4). The need to phase out coal, to end fossil-fuel subsidies and to promote the use of alternative fuels in transportation will inevitably lead to additional employment loss. The additional employment decline of 10% associated with the EGD comes on top of the 30% (coal) and 4% (fuels) reduction in employment already forecast for these sectors for 2018-30. The waste sector clearly benefits from the implementation of the EGD. While the baseline skills forecast scenario showed a slight employment decline until 2030, the wider adoption of the circular economy as foreseen in the EGD is

likely to result in a strong employment rise. With increased use of recycled materials, reduction in use of virgin materials, increase in repair activities, the introduction of a collaborative economy, and investment in recycling facilities, employment is foreseen to increase by 52% by 2030.

Figure 4. **EU-27 employment trends until 2030: skills forecast baseline vs green deal scenario**



NB: Presented as % difference from the baseline.
Source: Cedefop skills forecast scenario analysis.

In most other sectors, a redirection of employment towards cleaner production, rather than an overall employment rise or fall is expected. This appears to be the case for the electronics and the textiles and leather sector, which will be more geared towards sharing practices and promoting a longer lifetime of products thanks to the implementation of the circular economy initiative. The decarbonisation of the steel and cement sectors is expected to offset partially the projected decline in employment in these sectors through redirecting the workers towards cleaner activities; however, the positive effect could be less if many of these activities are automated in the next few years. In the automotive sector, the continued shift from producing combustion-engine powered cars to electric vehicles will mostly redirect workers within the sector rather than reducing employment. The same is likely to occur

in construction. The ‘renovation wave’ (increasing energy efficiency and affordability of buildings) and the circular economy plan (reducing resources used for building construction and maintenance) will not fundamentally alter the overall employment outlook, but merely redirect workers within the sector.

Taken together, the sectors considered in the EGD scenario represent a modest share of total EU-27 employment. Changes in their employment outlook linked to the implementation of the green deal are unlikely to affect overall employment trends significantly in the EU-27. Since implementation of EGD policies does not appear to lead to significant employment losses, it suggests a greener Europe, higher energy efficiency, lower pollution and a healthier environment is important. While EGD measures will reduce employment in some resource intensive and polluting sectors, others are likely to grow. Managing the green transition will require significant up- and reskilling, so that people can move to green occupations and away from declining sectors. The ‘just and inclusive transition mechanism’ in the EGD provides the framework to support countries and regions heavily exposed to declining employment linked to its implementation.

CHAPTER 7.

Skills forecast scenarios: summary and implications for policy

The leitmotiv of this decade is transition. The scenarios presented in this publication shed light on different transition dimensions, though it is not the absolute numbers they deliver, but rather the signals they provide that are important. They should be considered as clues that uncover potential structural shifts in the economy and provide expert insights into how and why the labour market is changing.

In some respects, the realities emerging post-coronavirus appear to accelerate and reinforce megatrends rather than being game-changing: the growing importance of the service sector, increasing automation/digitisation, and growing labour market polarisation towards high-skilled jobs. Such trends are accompanied by growing demand for high-level skills that need to be acquired by a population that is ageing. The fact that even before the Covid-19 crisis almost half of the adult population had a potential need for up or reskilling is a case in point.

A key finding emerging from the scenarios is that a substantial share of the replacement demand forecast may not materialise because accelerating automation, and a context that is more accommodating to it, will lead more employers to replace people with technology. This particularly concerns those with low- or medium-level qualifications. As people employed in highly skilled occupations (e.g. professionals) are less likely to be replaced by technology, difficulties in finding professionals with essential talent could rise.

In managing transitions, it is important to keep in mind that, while much may be technically possible, technology will not replace the entire workforce in particular sectors. Therefore, skills policies should be designed around the double ambition of helping higher-skilled workers develop capacity to stay current in, and shape the future of, work and assisting those in automatable jobs to make transitions towards work with better and in many cases greener prospects. In this context, insights into the type of jobs likely to disappear

is just as important as understanding skills needs in jobs, and the new jobs themselves emerging thanks to AI or other technological advancements. Such information is central to the education, training and skilling strategies of the future.

The systematic approach offered by skills forecasts to understanding the impact of long-term trends and policy choices on labour markets remains relevant in a world that is increasingly dynamic and disruptive. But while skills forecasts and scenarios provide added value and insight, they are just one perspective on labour market change. To unleash their full potential and further develop their contribution to holistic skills policies, it is crucial to combine forecasts with other types of labour market intelligence such as surveys, real-time labour market information, and the increasingly favoured skills foresight.

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DIGITAL, GREENER AND MORE RESILIENT

Insights from Cedefop's European skills forecast

Megatrends such as automation, greening and population ageing, along with the coronavirus pandemic, are reshaping the European labour market. Providing a long-term perspective to changes in skills and jobs, skills forecasts can make a useful contribution to decisions by policy-makers, experts, and social partners. Individuals and the professionals that support them can benefit from skills intelligence based on forecasts, feeding education, training and career decisions. In times of rapid change, scenarios are useful in shedding light on the impact of megatrends. In this short publication, Cedefop presents the key findings emerging from scenarios around Covid-19, automation and the European green deal. These scenarios are meant to stimulate reflection on labour market trends to 2030 and support evidence-based policy-making in VET, skills and related areas.

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